

Web of Life

Study Units

Unit 2: Life in the Forest

Supplemental Information

The Iowa landscape has been drastically altered in the last two centuries, yet the remaining woodlands, prairies, wetlands, and waters still are home to a great diversity of wildlife. Nearly 1,800 species of flowering plants and more than 560 species of vertebrates live in Iowa. There also are many thousands of species of invertebrates and other organisms (mosses, fungi, lichens, and algae).

As the size and quality of a piece of habitat is reduced, the diversity of species it can sustain decreases. Some native Iowa plants and animals have been extirpated (no longer found in the state) or have become threatened or endangered due to shrinking habitat, pollution, introduction of non-native species (that out-compete or disrupt native species' life cycles), unregulated hunting, and other factors. Check the IDNR web page for the most current list of endangered and threatened species in Iowa.

A community of plants and animals can be thought of as a web. The more diverse the community (the more strands in the web), the stronger it is. A diverse community (web) is more resilient to disturbance (can withstand having a few strands broken) and can remain functional even when a few members are lost.

Teaching Suggestions

Compare the class' lists of Iowa forest plants and animals to the lists provided on the following pages. Endangered and threatened species are noted. Emphasize that all organisms are part of the food web, either as producer or consumer. The "eat or be eaten cycle" is very natural.

As an enrichment, students could make and compare species lists of plants and animals seen in different types of habitats (e.g., in grazed versus ungrazed woodlands; in a large nature preserve versus a small natural area used by hikers, cyclists, and campers; native prairie versus introduced grasses).

Evaluation

Have students complete the *Web of Life: Wordsearch* as a review of new terms.

Student Materials

Web of Life: Animal Investigation Worksheet

Web of Life: Plant Investigation Worksheet

Web of Life: Wordsearch

Teacher Aids

Iowa Forest Animals and Plants

Web of Life: Wordsearch Answers

Posters of forest diversity

Additional Materials

Howell, D. and M. Leoschke. Living on the Edge: Endangered Species in Iowa. 1992. Des Moines: Iowa Department of Natural Resources.

Iowa Association of Naturalists. 1998. Iowa Habitat Loss and Disappearing Wildlife. (available from: ISU Extension, www.extension.iastate.edu/pubs, 515/294-5247)

Iowa Forest Animals and Plants

This is not a complete list of all species that live in an Iowa forest. The animals are forest or forest-edge dwellers, but may also frequent other areas. Some migratory visitors (birds that pass through Iowa forests in the spring and fall) and winter visitors (birds from the north that find food in Iowa in the winter months) are listed. (The insect list is longest because they are the largest group of animals.)

If the species is listed as threatened or endangered in Iowa or federally it is marked accordingly. Not all animals listed as threatened or endangered in Iowa will appear on the federal list. (E = endangered, T = threatened, F = federaly, IA = Iowa) Check the IDNR web page for the most current T & E species listing. Exotic (non-native) species also are noted.

Animals	red-shouldered hawk (IA-E)	western worm snake (IA-T)	mourning cloak butterfly
Mammals	red-tailed hawk	wood turtle (IA-E)	polyphemus moth
big brown bat	saw-whet owl	Amphibians	regal moth
beaver	screech owl	American toad	rosy maple moth
bobcat	sharp-shinned hawk	central newt (IA-T)	spring azure butterfly
coyote	turkey vulture	gray treefrog	spring cankerworm
deer mouse	songbirds	spring peeper	Virginia creeper sphinx moth
eastern mole	black-capped chickadee	tiger salamander	walnut caterpillar
eastern pipistrelle bat	brown creeper	Invertebrates	white-marked tussock moth
evening bat	brown thrasher	centipede	woolly bear moth
fox squirrel	common flicker	earthworm	yellow necked caterpillar
gray fox	crow	IA Pleistocene snail (F/IA-E)	Insects
gray squirrel	dark-eyed junco	millipede	flies
hoary bat	downy woodpecker	slug	biting midge
Indiana bat (F/IA-E)	gray catbird	snail	black fly
Keen's myotis bat	hairy woodpecker	sowbug	deer fly
least weasel	house wren	Spiders, Ticks, Mites	flesh fly
little brown bat	indigo bunting	daddy longlegs	horse fly
long-tailed weasel	northern cardinal	deer tick = lyme tick	mosquito
masked shrew	northern oriole	forest wolf spider	orthoptera
mink	ovenbird (uncommon)	hammock spider	cave cricket
opossum	pileated woodpecker	inconspicuous crab	differential grasshopper
raccoon	red-bellied woodpecker	lone star tick	field cricket
red bat	red-headed woodpecker	shamrock spider	katydid
red fox	red-eyed vireo	spider	tree cricket
red squirrel	rose-breasted grosbeak	spruce spider mite	walking stick
short-tailed shrew	rufous-sided towhee	two-spotted spider mite	true bugs
short-tailed weasel	scarlet tanager	wood tick	eastern boxelder bug
silver-haired bat	tufted titmouse	Moths & Butterflies	hackberry lace bug
southern flying squirrel	wood thrush	bagworm	scarlet plant bug
striped skunk	yellow bellied sapsucker	catalpa sphinx moth	grasshoppers, et.al.
white-tailed deer	Reptiles	caterpillar	annual cicada
Birds	black rat snake	cecropia moth	aphid
game birds	brown snake	eastern tent caterpillar	buffalo treehopper
American woodcock	bullsnake	eastern tiger swallowtail	honeysuckle aphid
bobwhite quail	earth snake	fairy moth	leaf hopper
eastern wild turkey	fox snake	fall cankerworm	oyster shell scale
ruffed grouse	milk snake	fall webworm	periodical cicada
wood duck	northern lined snake	giant swallowtail	pine needle scale
raptors, birds of prey	northern redbelly snake	green fruitworm	beetles
barred owl	prairie kingsnake	hickory horned devil luna moth	acorn weevil
Cooper's hawk	prairie ringneck snake	monarch butterfly	banded net-wing beetle
great-horned owl	speckled kingsnake (IA-T)		bark beetle
long-eared owl (IA-T)	timber rattlesnake		

burying beetle
click beetle
elm leaf beetle
fireflies
ground beetle
hickory nut weevil
ladybug beetle
May beetle = June bug
oak timberworm beetle
twig pruner
two-lined chestnut borer

hymenoptera

bald-faced hornet
black carpenter ant
elm leafminer
European pine sawfly
honey bee
leaf-cutting bee
little black ant

miscellaneous

lacewing
springtail
termite
wood roach

aquatic insects

damselfly
dragonfly
mayfly
stonefly

gall insects

hackberry nipple gall
hickory petiole
maple bladder
oak twig
oak leaf

Plants

Wildflowers

agrimony
American bellflower
arrow leafed aster
baneberries
bedstraw
bellwort
blood root
blue cohosh
blue lobelia
bracken fern
buttercup
carrion flower
catnip
cinnamon fern (IA-E)
climbing bittersweet
columbine
common cinquefoil
Dutchman's breeches

early meadow rue
false Solomon's seal
flowering spurge
fringed loosestrife
garlic mustard (exotic)
goldenrod
greenbrier
hepatica
hog peanut
interrupted fern
jack-in-the-pulpit
Jacob's ladder
jewelweed
lady fern
large leafed aster
lop seed
maiden hair fern
May apple
milk weed
miterwort
nightshade
northern wild monkshood
(F/IA-T)
partridgeberry
poison ivy (also vines)
rattlesnake fern
rough avens
rue anemone
shooting star
showy lady's slipper (IA-T)
skunk cabbage
smooth yellow violet
Solomon's seal
spinulose shield fern
spreading dogbane
spring beauty
squirrel corn
stinging nettle
swamp dewberry
sweet cicely
sweet William
tick trefoil
trillium
trout lily (yellow, IA-T)
violet
Virginia bluebell
Virginia waterleaf
white snakeroot
whorled loosestrife
wild geranium
wild ginger
wild lily of the valley
wild sarsaparilla
wild strawberry
wood nettle
wood sorrel

woodland sunflower

Shrubs & Vines

alternate leaf dogwood
American hazelnut
black raspberry
bottlebush
bush honeysuckle (exotic)
buttonbush
chokecherry
common buckthorn (exotic)
common elderberry
gooseberry
gray dogwood
greenbrier
highbush cranberry
Juneberry
leadplant
multiflora rose (exotic)
nannyberry
prickly ash
raspberry
red elderberry
Russian olive
serviceberry
smooth sumac
snowberry
staghorn sumac
viburnum
Virginia creeper
wild cucumber
wild grape
wild plum
wild rose
winterberry (IA-E)
witchhazel

Trees

American chestnut
American elm
American hornbeam
arborvitae
Austrian pine
baldcypress
balsam fir
basswood
bigtooth aspen
bitternut hickory
black ash
black cherry
black locust
black maple
black oak
black walnut
blackjack oak
blue ash (IA-T)
boxelder

bur oak
butternut
catalpa (exotic)
chinkapin oak
chokecherry
cottonwood
dogwood
eastern red cedar
green ash
hackberry
hawthorn
honey locust
horse chestnut (exotic)
ironwood (hop hornbeam)
jack pine
Kentucky coffee tree
mockernut hickory
mulberry
northern pin oak
Ohio buckeye
osage orange
paper birch
pawpaw
pecan
persimmon
pignut hickory
pin oak
ponderosa pine
post oak
quaking aspen
red maple
red mulberry
red oak
red pine
river birch
rock elm
scotch pine
serviceberry
shagbark hickory
shellbark hickory
shingle oak
Siberian elm
silver maple
slippery elm
sugar maple
swamp white oak
sycamore
tree of heaven
Virginia pine
white oak
white ash
white mulberry
white pine
white poplar (exotic)
willow
yellow birch

Web of Life: Animal Investigation Worksheet

Name of animal: _____

Directions: Be as complete in your answers for your animal as possible. Use field guides, the Internet, encyclopedias, or other resources to help find your answers.

1. Where does this animal make its home? Where can you find this animal?
Why does it live there?

2. What are the food, shelter, water, and space requirements for this animal?

3. What adaptations does it have that help it deal with winter? Does it hibernate, insulate, migrate, or do something else?

4. Does this animal reproduce in Iowa? If no, where does this animal reproduce?

5. Is it a predator? If yes, what is its prey?

6. Does it live in association with other plants or animals? For example: wood ticks need warm blooded animals in the area to act as a blood meal host.

7. How could our environment change if this animal became extinct?

Web of Life: Plant Investigation Worksheet

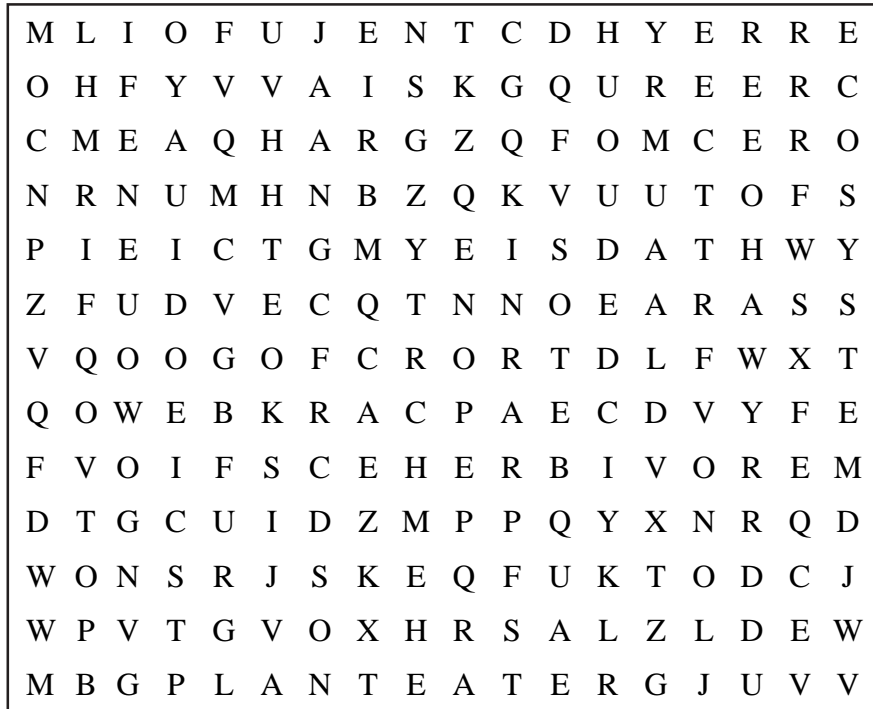
Plant Name: _____

Directions: Be as complete in your answers for your plant as possible. Use field guides, the Internet, encyclopedias, or other resources to help find your answers.

1. Where does this plant make its home? Why does it live there?
2. What are the soil, shelter, water, and space requirements for this plant? How much water and sunlight does this plant need?
3. What adaptations does it have to deal with winter? Does it go dormant, have ways to make food in the winter, or do something else?
4. How does this plant reproduce? If it reproduces by seeds, how are they dispersed?
5. Is this plant growing near other plants? If yes, what kinds?
6. What animals live near this plant? What animals eat this plant?
7. How could our environment change if this plant became extinct?

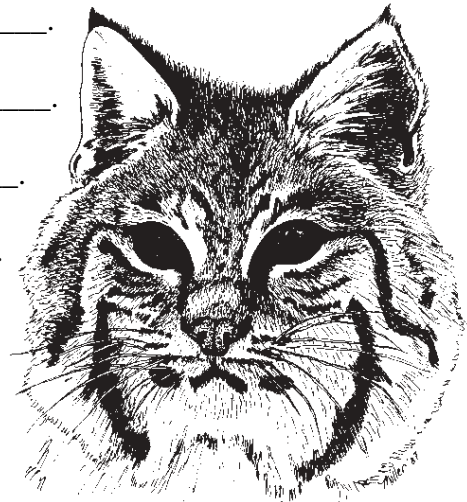
Web of Life: Wordsearch

Directions: Circle words from the list you find in the puzzle. Look for words forwards, backward, and diagonally. For the questions below, fill in the blank with the best term from the wordsearch list.

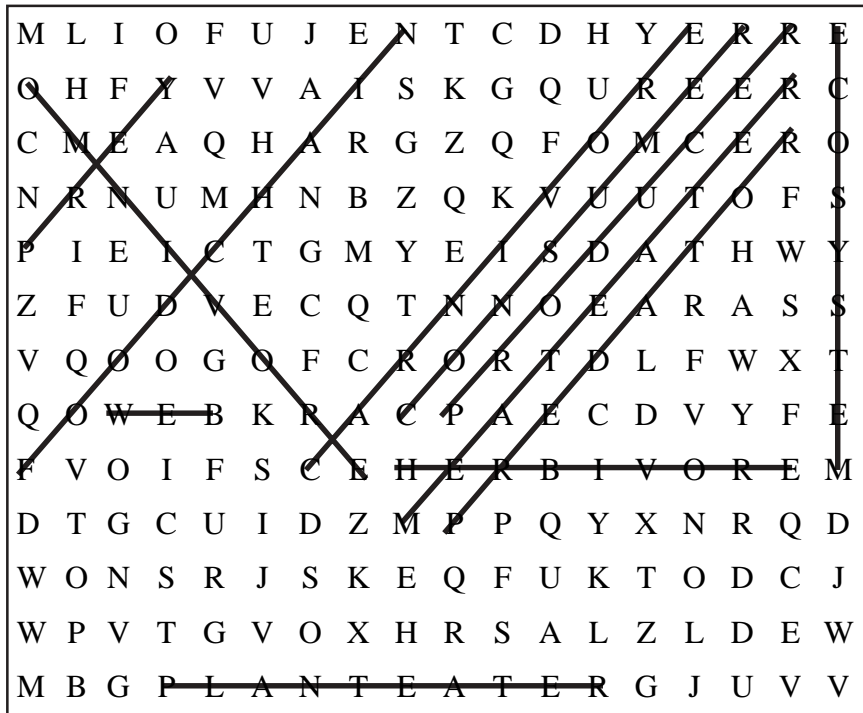


producer
consumer
herbivore
carnivore
omnivore
food chain
web
predator
prey
plant eater
meat eater
ecosystem

1. Another name for a carnivore is a(n)_____.
2. An omnivore doesn't make it's own food, it is a(n)_____.
3. Another name for an herbivore is a(n)_____.
4. The food a predator eats is called_____.
5. The forest is one type of_____.
6. Food chains combine to make a food_____.



Web of Life: Wordsearch Answers



producer
consumer
herbivore
carnivore
omnivore
food chain
web
predator
prey
plant eater
meat eater
ecosystem

1. meat eater
2. consumer
(plant eater & meat eater)
3. plant eater
4. prey
5. ecosystem
6. web

